

## You Can Save Energy, Money, and Prevent Pollution with Insulation. Here's How:

saving  
the Earth

Most household energy comes from the burning of fossil fuels, like coal, oil, and natural gas, which contributes to air pollution. By properly insulating your home, you are not only saving household energy, but preventing emissions of harmful greenhouse gases like carbon dioxide (CO<sub>2</sub>) into the environment. If all U.S. residential buildings were upgraded with insulation at levels in the latest Model Energy Code, 250 billion pounds of CO<sub>2</sub> emissions per year would be prevented, which is equivalent to removing 25 million cars from the road.<sup>1</sup>

saving  
Your Money

Saving household energy also lowers your utility bills. In a nationwide survey of building improvements, adding ceiling insulation reduced heating bills by 10 to 20 percent and average energy savings associated with adding insulation typically pay for or exceed the cost of the installation.<sup>2</sup>

<sup>1</sup> Environmental Conservation Management, *Green and Competitive* (1996).

<sup>2</sup> Cohen, S., C. Goldman, and J. Harris, *Measured Energy Savings and Economics of Retrofitting Existing Single-Family Homes: An Update of the BECA-B Database*, LBL-28147, vol. 1 (Berkeley, CA: Lawrence Berkeley National Laboratory, February 1991).

## Follow the Insulating Tips Below For the Greatest Savings

tip

**Correctly Install Your Insulation** – Insulation will only deliver expected savings if it is correctly installed. Be sure to follow the manufacturer's/(company name) recommendations, cautions, and limitations when insulating your home yourself, or hire a contractor committed to high quality installation.

tip

**Seal All Outside Air Leaks** – Properly sealing outside air leaks throughout your house is particularly important for achieving the greatest energy savings.

tip

**Choose the Right R-Value** – An R-value is a measure of insulating power or ability to resist the flow of heat. Higher R-values mean greater insulating power, which means greater household energy savings and greater cost savings.<sup>3</sup> Look for R-values on insulation packaging or talk to your contractor.

• **R-Values for Existing Homes** - The levels in the table below are total R-values. Subtract the R-value of any insulation you have now to determine the R-value to purchase. If you don't have enough space or access to install the total R-value, just add insulation where space allows. To insulate walls with closed cavities, consider filling the cavity with blown-in insulation or adding rigid insulation under new siding.

• **R-Values for New Homes or Additions** - The R-values in the table below are for existing homes. For new homes and additions, higher R-values may be required by law, so be sure to check with a local code official. If you are building new walls, consider value-engineered framing, structural insulated panels and insulated concrete forms to get high R-values.

tip

**Look for the ENERGY STAR® label** – the symbol for energy efficiency.

<sup>3</sup>Savings vary. See the Seller's Federal Trade Commission Fact Sheet on R-Values available from the retailer or distributor.



Use this table for help in choosing R-values that are right for your home. Find your climate, your household heating system, and the area in your home that you plan to insulate and look for the matching R-value range.

Cost-Effective Insulation R-Values for Existing Homes <sup>a</sup>							
If you live in a climate that is...	and your heating system is... <sup>b</sup>	insulate to these levels in the ...					
		ceiling	wood-frame wall	floor	basement/crawl space walls <sup>d</sup>	Ducts: In Unheated/Uncooled...	
						attic	basement/crawl
<b>Warm</b> with cooling and minimal heating requirements (i.e., FL & HI; coastal CA; southeast TX; southern LA, AR, MS, AL & GA).	gas/oil or heat pump	R-22 to R-38	R-11 to R-15 <sup>c</sup>	R-11 to R-13	R-11 to R-19	R-4 to R-8	none to R-4
	electric resistance	R-38 to R-49	R-11 to R-22 <sup>c</sup>	R-13 to R-25	R-11 to R-19	R-4 to R-8	none to R-4
<b>Mixed</b> with moderate heating and cooling requirements (i.e., WA, WV, KY, MO, NE, OK, OR, WA & ID; southern IN, KS, NM & AZ; northern LA, AR, MS, AL & GA; inland CA & western NV).	gas/oil or heat pump	R-38	R-11 to R-22 <sup>c</sup>	R-13 to R-25	R-11 to R-19	R-4 to R-8	R-2 to R-8
	electric resistance	R-49	R-11 to R-28 <sup>c</sup>	R-25	R-11 to R-19	R-4 to R-8	R-2 to R-8
<b>Cold</b> (i.e., PA, NY, New England, northern Midwest, Great Lakes area, mountainous areas (e.g., CO, WY, UT, etc.)).	gas/oil	R-38 to R-49	R-11 to R-22 <sup>c</sup>	R-25	R-11 to R-19	R-6 to R-11	R-2 to R-11
	heat pump or electric resistance	R-49	R-11 to R-28 <sup>c</sup>	R-25	R-13 to R-19	R-6 to R-11	R-2 to R-11

a. Adapted from the U.S. Department of Energy 1997 Insulation Fact Sheet available at (800)-DOE-ERECH and Modera et al., "Impact of Residential Duct Insulation on HVAC Energy Use and Life Cycle Cost to Consumers" ASHRAE Transactions (#96-13-4).

b. Insulation is also effective at reducing cooling bills. These levels assume your house has electric air-conditioning.

c. R-values may be achieved through a combination of cavity insulation and rigid board insulation and are for insulation only (not whole wall).

d. Do not insulate crawl space walls if crawl space is wet or ventilated with outdoor air.

e. Use the lower R-value for return ducts and the higher R-value for supply ducts.

## When to Insulate Check-List

Insulate if you've checked yes for any of the following questions:

*Are your energy bills high?*

☐ Yes ☐ No

Typically, more than half your energy bill goes to heat and cool your home. By adding insulation, you can lower your energy bills.

*Are you uncomfortably cold in winter or hot in summer?*

☐ Yes ☐ No

Adding insulation can create a more uniform temperature inside your house.

*Do you want more peace and quiet?*

☐ Yes ☐ No

Insulation can help to reduce noise from outdoors.

*Are you renovating?*

☐ Yes ☐ No

Whether building an addition, installing new siding or re-roofing, install enough insulation now. It will be more expensive to add it later.

*Do you have an older home and haven't added insulation?*

☐ Yes ☐ No

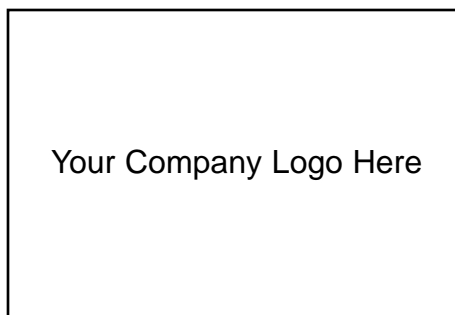
In a recent survey, only 20 percent of homes built before 1980 were well insulated.<sup>4</sup>

*Do you want to increase the resale value of your home?*

☐ Yes ☐ No

Investing in insulation can add value to your home. Prospective buyers pay attention to utility bills, and they value a home that is comfortable and costs less to operate.

As a Partner in the ENERGY STAR<sup>®</sup> Insulation Program, (Company Name) is working with the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE) to educate homeowners about the benefits of adding insulation to their homes.



## How Do I Learn More ?

Call the EPA ENERGY STAR<sup>®</sup> toll-free Hotline at 1-888-STAR-YES (1-888-782-7937) or the DOE toll-free Hotline at 1-800-DOE-EREC or visit the EPA web site at <http://www.epa.gov/energystar.html>.

ENERGY STAR is a registered mark.



## ENERGY STAR<sup>®</sup> Insulation Guide for Homeowners



### An Investment You Can Be Comfortable With.

Printed by (Company Name)

<sup>4</sup> Energy Information Administration, *Housing Characteristics* 1993 (1995).